National Digital Forecast Database Technical Workshop Summary

The first Technical Workshop on the National Digital Forecast Database (NDFD) was conducted to provide information on the transition the National Weather Service (NWS) is making to digital forecasting and the associated new products and services. Approximately 65 partners and customers, representing organizations from public, private, and academic sectors participated in the day-long event held on August 13, 2003 in Silver Spring, MD.

Greg Mandt, Director of the Office of Climate, Water, and Weather Services opened the workshop with his overview of the evolution of the NWS digital capabilities, the recent activities that have been conducted to demonstrate our readiness for these services, and opportunities that the NDFD provides for partnerships with the organizations such as those represented at the workshop.

The primary goal of the workshop was to provide details on the technical aspects of the database. Presentations on these aspects were made by staff of the Meteorological Development Laboratory (MDL) and the Office of the Chief Information Officer (OCIO). An overview of the forecasting process concepts, the initial weather elements, and data flow was provided. Details for the NDFD such as data format and availability, decoders, web services, data tools and visualization services, and dissemination methodologies were presented.

Participants had an opportunity to interact with NWS staff in discussions to identify near term and future requirements for enhancements to the NDFD. Representatives from the private, public, and academic sectors discussed their experiences using the NDFD data. These individuals reported that they have not experienced any trouble accessing, decoding, and using the data, and were very satisfied with our capabilities to date.

The participants described many recommendations for enhancements to NDFD, some of which the NWS is already committed to implementing (those denoted with * below), such as:

- Provide NDFD data in netCDF format
- Provide a way to let customers know whether the data has been updated, and provide a way to access only what has changed
- Follow accepted standards for NDFD metadata *
- Provide data that can be used in dispersion models
- Provide contaminant forecasts
- Expand the domain of the NDFD to include the Gulf of Mexico and High Seas domain *

- Provide Sea Surface Temperature data in the NDFD

- Establish an NDFD listserver or other communication methods to provide periodic communication with partners and customers

- Implement an approval process for forecaster smart tools *

- Provide information on thresholds used for element collaboration *

- Provide “what’s new” section on the NDFD web page *

- Create probabilistic information * and MOS ensemble output in NDFD

- Provide the grid consistency information to the public *

- Conduct targeted user group meetings to address concerns with consistency thresholds *

- Provide the NDFD data to a select group of users rather than requiring them to access the data

- Provide public access to the chat room collaboration

Participants asked the presenters a wide range of questions on various aspects of the digital products services such as:

- What are our plans for incorporating observational data such as those obtained from sensors on the state highways into NDFD?

  -This type of data is highly useful for monitoring and analysis of weather conditions. The NWS does have a long term goal to provide digital access to observational data, but not necessarily from the NDFD. A new database may be created for this data type.

- What is the impact of numerical model biases on NDFD skill?

  -It is recognized that NDFD forecast skill may be highly related to numerical model skill, especially in the day six and seven forecast periods.

- What are the NDFD data archival requirements?

  -The National Climatic Data Center will provide NDFD data archival for a 5 year period of record for all gridded forecast elements.

- What are the verification plans for NDFD?

-The MDL is developing a long term plan for gridded data verification. Verification of the NDFD gridded forecasts at NWS observational sites is now being conducted, and will be expanded to additional sites.

· Are there plans for provision of NDFD elements at hourly forecast intervals?

-There is a long term goal to provide the data at higher spatial and temporal resolution.

· Are there plans to include numerical model guidance in the NDFD?

-There are no plans to provide numerical model guidance via the NDFD.

· Are there plans to begin the dissemination of NDFD forecast data via NOAAPort?

-There are no immediate plans to disseminate NDFD forecasts to customers via NOAAPort due to the concerns with the size of the products.

· Does the NWS plan to push the NDFD forecast data to a subset of customers?

-Technically we could do this, but we don't have plans to do so at this time.

· How can users ensure they are getting the most recent data?

-The gridded forecast elements are automatically sent to the NDFD server and mosaiced into national and regional scale domains on an hourly basis, so to ensure the most recent data is acquired it may be necessary to download the gridded data each hour.

· Are there plans to extend the NDFD globally?

-We do plan to extend the spatial domain of NDFD out to the Offshore and High Seas areas of responsibility over the Atlantic and Pacific Oceans, and will work towards this beginning in late FY04.

· What is available for service backup?

-There are procedures and capabilities to provide gridded forecasts to the NDFD from a back up office.

· Are there plans to transmit NDFD forecasts via the NOAA FM radio frequencies?

-The NWS has not looked into this yet.

- What is the experimental product process?

  -The NWS has an established policy in place to describe the process used to transition from experimental to official products, NWS Instruction 10-102, New or Enhanced Products and Services, available from: http://www.nws.noaa.gov/directives/

- Are there plans to integrate warnings into NDFD?

  -Short term warning information will be incorporated into NDFD grids when the Valid Time Event Code (VTEC) capabilities are implemented. The NWS will examine the potential to develop gridded severe weather products.

The workshop participants asked for more information and future meetings focused on:

- Verification
- GIS applications
- How to use data with dispersion and plume models
- Aviation applications
- Surface transportation grids
- Ensemble and probabilistic grids
- More forums and meetings on NDFD
- Focused meetings with targeted groups such as emergency managers at the state and federal levels, utility companies, or water resource managers

Based upon the evaluation forms completed, participants were very satisfied with the workshop, and would like to have more workshops on this subject.

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